

Help Street, Chatswood Digital Signage Safety Assessment

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The Transport Planning Partnership



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APPENDICES

A. CONCEPT DESIGN PLANS



1 Introduction

1.1 Overview

Sydney Trains is seeking approval for the installation of a LED digital illuminated sign on an existing overhead railway bridge above Help Street in Chatswood. The proposed signage is to be located on both sides of the railway bridge, facing eastbound and westbound travel lanes on Help Street.

Transport for NSW (TfNSW), formerly Roads and Maritime Services require a signage safety assessment to be completed for the proposed signage.

The Transport Planning Partnership (TTPP) has been commissioned by Ethos Urban, on behalf of Sydney Trains, to undertake a signage safety assessment. This assessment has been carried out in accordance with Department of Planning's *Transport Corridor Outdoor Advertising and Signage Guidelines*, November 2017 (Guidelines) and State Environmental Planning Policy No. 64 – Advertising and Signage (SEPP 64). The Guidelines outline best practice for the planning and design of outdoor advertisements in transport corridors. The SEPP 64 sets out rules regarding outdoor advertising for permissible locations and exempt developments.

1.2 Purpose of this Report

The aim of this assessment is to determine the suitability of the digital signage and provide recommendations on mitigation measures to alleviate impacts on the surrounding road network. This report sets out the findings of TTPP's signage safety assessment for the proposed digital signage above Help Street in Chatswood.

The following items have been considered in this report:

- Potential for the signage to obstruct a driver's view of the road, traffic control devices and signalised pedestrian crossings.
- Distance from upstream or downstream intersections or other decision points, such as merge points and diverging points.
- Potential for the signage to distract at a critical time or for an extended period of time.
- Location relative to the carriageway and its potential to be a physical obstruction for vehicles or other road users.
- Appropriate dwell times based on the speed environment.
- Location in relation to other signage.



1.3 References

In preparing this report, reference has been made to the following:

- An inspection of the signage location from a driving viewpoint along Help Street carried out on Wednesday 11 November 2020.
- Austroads Guide to Road Design Part 3, Geometric Design, 2016.
- Austroads Guide to Road Design Part 4A, Unsignalised and Signalised Intersections, 2017.
- Transport Corridor Outdoor Advertising and Signage Guidelines, November 2017 by Department of Planning and Environment.
- State Environmental Planning Policy No. 64 Advertising and Signage (SEPP 64).
- Design plans of the proposed signage dated 17/12/2020.



2 Proposal Description

2.1 Location Details

New digital signage is proposed to be installed off the sides of the existing overhead railway bridge across Help Street in Chatswood. The railway bridge is used by trains travelling on the T1 North Shore Line, T9 Northern Line and the Metro North West Line.

The proposed digital sign boards will be situated on the eastern and western facades of the railway bridge. Currently, there are no sign boards placed on the railway bridge.

In the vicinity of the proposed signage location, the railway bridge is situated between two signalised intersections, namely, Help Street-Railway Street and Help Street-Orchard Road.

An aerial image of the signage location and surrounding environs are shown in Figure 2.1.



Figure 2.1: Signage Location

Map Source: Nearmap, aerial imagery dated 6 December 2020



2.2 Description of Proposed Signage

Each signage board will have a length of 15.5 m and height of 3.3 m, and a visual screen with a length of 12.4 m and height of 3.2 m (39.7 m² area). The screen would be set upon a black cladding which will visually appear as a plain border around the visual screen. The base of the signage board will align with the lowest point of the railway bridge.

A minimum vertical clearance of 4.6 m between the base of the sign board and the road surface will be provided. The sign board would not protrude lower than the lowest point on the existing railway bridge.

The digital signage with LED panel will be installed on both sides of the railway bridge which face the eastbound and westbound travel lanes on Help Street. The proposed digital signage will be used for promoting Sydney Trains and its sponsors, and third-party advertising. The digital signage will contain text and images.

2.3 Signage Exposure

The proposed digital signage would be visible to traffic travelling on Help Street on the east approach and west approach, as shown in Figure 2.2. A site visit was undertaken on Wednesday 11 November 2020 to inspect driver sight distances on both approaches to the proposed signage location and observe any potential crash hazards likely to result from the proposed digital signage. A description of the site investigation findings is provided herein.



Figure 2.2: Help Street Approaches



2.3.1 Help Street East Approach

The lane configuration on the Help Street east approach in the vicinity of the proposed signage location is shown in Figure 2.3. Travel lanes are numbered 1 and 2 starting from the kerbside lane.



Figure 2.3: Help Street East Approach Lane Configuration

Source: Photograph taken by TTPP dated 11/11/2020

- The east facing digital signage would be visible to motorists on Help Street travelling westbound.
- The digital signage would likely be visible in traffic lanes as follows:
 - In Lane 1 (through lane), 60 m from the sign on the east approach.
 - In Lane 2 (through lane), 60 m from the sign on the east approach.
- Visibility towards signage from a further distance back is obstructed by tree foliage, as can be seen in Figure 2.5 and Figure 2.6.
- In all lanes, the digital signage would become out of driving view approximately 14 m east of the proposed signage.

Figure 2.4 illustrates a perspective of the designer's impression of the concept design at the proposed signage location. The visible distances on Help Street east approach are shown in Figure 2.5 and Figure 2.6.



Concept plans of the proposed digital signage are provided in Appendix A.

<image>

Figure 2.4: Designer's Impression on East Approach

Source: Ethos Urban Pty Ltd dated 17/12/2020



Figure 2.5: East Approach Signage Exposure – Lane 1

Source: Photograph taken by TTPP dated 11/11/2020





Figure 2.6: East Approach Signage Exposure – Lane 2

Source: Photograph taken by TTPP dated 11/11/2020

2.3.2 Help Street West Approach

The lane configuration on Help Street west approach in the vicinity of the proposed signage is shown in Figure 2.7. There are two travel lanes on approach to the proposed signage location which are numbered 1 and 2 from the kerbside lane. Lane 1 is regularly occupied by short-term on-street parking (1P) and loading zone, and hence, the typical travel lane length is approximately 30m.



Figure 2.7: Help Street West Approach Lane Configuration

Source: Photograph taken by TTPP dated 11/11/2020



- The west facing digital signage would be visible to motorists on Help Street travelling eastbound.
- The digital signage would likely be visible in traffic lanes as follows:
 - In Lane 1 (through lane), 90 m from the sign on the west approach (from the end of the on-street parking and loading zone).
 - In Lane 2 (through lane), 115 m from the sign on the west approach.
- In all lanes, the digital signage would become out of driving view approximately 14 m west of the proposed signage.

Figure 2.8 shows the designer's impression of the proposed digital signage on Help Street west approach. The visible distances on the Help Street west approach are shown in Figure 2.9 and Figure 2.10.



Figure 2.8: Designer's Impression on West Approach

Source: Ethos Urban Pty Ltd dated 17/12/2020





Figure 2.9: West Approach Signage Exposure – Lane 1

Source: Photograph taken by TTPP dated 11/11/2020



Figure 2.10: West Approach Signage Exposure – Lane 2

Source: Photograph taken by TTPP dated 11/11/2020



2.4 Crash History

Historic crash data has been obtained from Transport for NSW (TfNSW) and assessed for incidents on Help Street within the viewable distance of the proposed signage location. Based on site observations (as detailed in Section 2.3), the proposed signage location is visible from a distance of approximately 60 m away on the Help Street east approach and up to 115 m away on the Help Street west approach.

Crash history data has been assessed on both approaches to the proposed signage location between 1 January 2015 and 31 December 2019 (5-year finalised data). The location of historical crashes in the vicinity and a description of the incident are shown in Figure 2.11. A summary of the crashes in the vicinity of the proposed signage is presented in Table 2.1.

		Crash Severity (No. of Crashes)					
Location	Crash Type	Fatality	Serious Injury	Moderate Injury	Minor Injury	Non- casualty (tow-away)	
Westgepregeb	Pedestrian Far Side (RUM CODE 2)			1			
wesi approach	Same Lane Side Swipe (RUM CODE 30)			1		1	
	Sub-total	0	0	2	0	1	

Table 2.1: Crash Type and Severity

Figure 2.11: Crash Locations in Recent 5-Year Period



Source: Transport for NSW



Based on the above, there are a total of three incidents recorded within the visible distance of the proposed digital signage on the west approach. All three incidents were recorded at the Help Street and Railway Street intersection. Two of the three incidents resulted in moderate injury while the other incident was classified as non-casualty (tow away).

The most common incident to occur in the vicinity is a rear end related crash type (RUM CODE 30) i.e. 2 out of 3 crashes. The two rear end crashes resulted in a moderate injury and a non-casualty (tow away) injury. The other incident was a pedestrian far side crash type (RUM CODE 2) which involved a vehicle turning right from Railway Street to Help Street collided with a pedestrian crossing Help Street northbound resulting in a moderate injury.

There are no reported crashes on the east approach to the digital advertising sign.



3 Statutory Requirements

This section of the report assesses the compliance with the road safety assessment criteria established in the Guidelines and State Environmental Planning Policy (SEPP) 64 requires analysis as to whether the proposal will reduce the safety of:

- Any public roads
- Pedestrians and cyclists
- Pedestrians by obscuring sight lines from public areas.

The proposed design has been assessed against the relevant statutory requirements and guidelines. In order to assess any new installation against the above key road safety assessment criteria, a series of detailed criteria are set out in Section 3, Advertisements and Road Safety of the Guidelines.

3.1 Sign Location Criteria

3.1.1 Road Clearance

- (a) The advertisement must not create a physical obstruction or hazard. For example:
 - (i) Does the sign obstruct the movement of pedestrians or bicycle riders? (e.g. telephone kiosks and other street furniture along roads and footpath areas).
 - (ii) Does the sign protrude below a bridge or other structure so it could be hit by trucks or other tall vehicles? Will the clearance between the road surface and the bottom of the sign meet appropriate road standards for that particular road?
 - (iii) Does the sign protrude laterally into the transport corridor so it could be hit by trucks or wide vehicles?

The digital signage will not physically obstruct any vehicle, pedestrian and cyclist movements as it will be placed on the side of the existing railway bridge above Help Street. The digital signage will not protrude below the underside of the railway bridge, and hence the vertical clearance will be maintained as per existing conditions.

The concept design for the signage and its positioning on the sides of the railway bridge are shown in Appendix A.



- (b) Where the sign supports are not frangible (breakable), the sign must be placed outside the clear zone in an acceptable location in accordance with Austroads Guide to Road Design (and RMS supplement) or behind an RMS-approved crash barrier.
- (c) Where a sign is proposed within the clear zone but behind an existing RMS-approved crash barrier, all its structures up to 5.8m in height (relative to the road level) are to comply with any applicable lateral clearances specified by Austroads Guide to Road Design (and RMS supplements) with respect to dynamic deflection and working width.

The digital sign boards will be installed on both sides of the railway bridge which is positioned above Help Street and outside of the clear zone. Hence, it would not require an RMS-approved crash barrier.

A minimum vertical clearance of 4.6 m will be maintained as per existing conditions.

(d) All signs that are permitted to hang over roads or footpaths should meet wind loading requirements as specified in AS1170.1 and AS 1170.2. All vertical clearances as specified above are regarded as being the height of the sign when under maximum vertical deflection.

As part of the detailed design phase, the proposed signage will be designed in accordance with Australia Standards AS1170.1 and AS1170.2 to meet the requirements for wind loading, whilst having consideration for height of the sign boards when under maximum vertical deflection.

3.1.2 Line of Sight

- (a) An advertisement must not obstruct the drivers view of the road particularly of other vehicles, bicycle riders or pedestrians at crossings.
- (b) An advertisement must not obstruct a pedestrian or cyclist's view of the road.

The proposed digital signage will be positioned at the height of the railway bridge which will not obstruct the driver, pedestrian or cyclist's view of Help Street.

(c) The advertisement should not be located in a position that has the potential to give incorrect information on the alignment of the road. In this context, the location and arrangement of signs' structures should not give visual clues to the driver suggesting that the road alignment is different to the actual alignment. An accurate photo-montage should be used to assess this issue.

The proposed signage will be positioned at the same height as the existing railway bridge which would not impede a driver's visibility on the alignment of the road. The digital signage would not indicate misleading information or information contrary to the existing roadway. This is supported by the designer's impression of the proposed signage as depicted in Figure 2.4 and Figure 2.8.



- (d) The advertisement should not distract a driver's attention away from the road environment for an extended length of time. For example:
 - (i) The sign should not be located in such a way that the driver's head is required to turn away from the road and the components of the traffic stream in order to view its display and/or message. All drivers should still be able to see the road when viewing the sign, as well as the main components of the traffic stream in peripheral view.
 - (ii) The sign should be oriented in a manner that does not create headlight reflection in the driver's line of sight. As a guideline, angling a sign five degrees away from right angles to the driver's line of sight can minimise headline reflections. On a curved road alignment, this should be checked for the distance measured back from the sign that a car would travel in 2.5 seconds at the design speed.

The proposed digital signage would be located within the driver's line of sight for both eastbound and westbound movements on Help Street with visible distance of up to 115 m and 60 m, respectively. In addition, the digital signage would be placed above the road therefore, a driver would not be required to turn away from the road in order to view the digital signage.

- 3.1.3 Proximity to Decision Making Points and Conflict Points
- (a) A sign should not be located:
 - (i) Less than the safe sight distance from an intersection, merge points, exit ramp, traffic control signal or sharp curves.
 - (ii) Less than the safe stopping sight distance from a marked foot crossing, pedestrian crossing, pedestrian refuge, cycle crossing, cycleway facility or hazard within the road environment.
 - (iii) So that it is visible from the stem of a T-intersection.

As referenced in the Guide to Road Design, Part 3, sight distance refers to the distance required to enable a driver to react and stop before reaching a hazard. This distance is dependent on the operating (85th percentile) speed of the road, road gradient and other road characteristics.

For the purpose of this assessment, an operating speed of 40 km/h has been used to calculate the safe stopping sight distance. A 40 km/h speed has been adopted based on the sign posted speed limit on Help Street (40 km/h high pedestrian activity area) as well as the speed limit which motorists were observed to be driving during the site inspection. According to Austroads guide, the minimum safe stopping distance for a 40 km/h speed zone is 34 m.



On the east approach, there is an upward slope of 2.1 % towards the railway bridge. This is based on the TCS plan of the Help Street and Orchard Road intersection (TCS 2262). Where there is a slope on the approach, the Austroads guide specifies a grade correction factor be applied. In this case, a correction of 1 m is deducted from the 34 m safe stopping distance. In this case, the corrected SSD is 33 m. The Austroads guide also states that the corrected SSD should be rounded to the nearest 5 m to be conservative. Therefore, the safe sight distance becomes 35 m.

On the west approach, there is a downward slope of 2.3 % towards the railway bridge. This is based on the TCS plan of the Help Street and Railway Street intersection (TCS 2263). Similarly to the east approach, a correction of 1 m is deducted from the 34 m safe stopping sight distance and the resultant SSD would be 35 m rounded to the nearest 5m.

On the above basis, the proposed signage should not be located within 35 m on approach to the traffic signals.

The proposed digital signage facing east would be located approximately 46 m before the stop line on approach to Railway Street. Also, the proposed signage would be located wellbeyond the SSD to the stop line at Orchard Road. Therefore, the digital signage on the east approach would not be located within the SSD of stop lines at nearby intersections as shown in Figure 3.1.



Figure 3.1: Safe Stopping Sight Distance – East Approach



On the west approach, the proposed signage would be located well-beyond the SSD to the stop line at Railway Street as shown in Figure 3.2. The proposed signage would be located within the safe stopping distance of the stop line at Orchard Road. However, at the 39 m mark (14 m back from the signage), the digital signage would be out of driving view as shown in Figure 3.3. As such, motorists would not observe the digital advertising signage within the safe stopping distance of the stop line at Orchard Road. In this regard, motorists would have sufficient reaction and braking time to stop safely on approach to the signalised intersection at Orchard Road.

Figure 3.2: Safe Stopping Sight Distance – West Approach



Figure 3.3: Driver's View on Help Street West Approach



Source: Photograph taken by TTPP dated 11/11/2020



As a measure to mitigate any preserved safety risk of the signage placement in the vicinity of the traffic signals, it is recommended that the minimum dwell time for content displayed on the digital signage be increased from the suggested duration as stipulated by the Transport Corridor Outdoor Advertising and Signage Guidelines.

For signage that is in an area having a speed limit below 80 km/h, the Guidelines prescribe a dwell time of 10 seconds. However, it is suggested that this is to be increased to a minimum of 15 seconds on both approaches.

The basis for this recommendation is the Land and Environment Court Case, *Outdoor Systems Pty Ltd v Georges River Council and Roads and Maritime Services [2017] NSWLEC 1505.* In this case, a digital signage was proposed to be installed at the intersection of Princes Highway and Rocky Point Road in Kogarah. The applicant proposed to modify the dwell time of the digital signage to 15 seconds (from 24 hours, as previously approved by RMS as the minimum dwell time). The LEC deemed the reduced dwell time to 15 seconds appropriate on the basis that the crash history at the proposed signage location did not suggest that it was "crash hotspot". This decision was driven by expert evidence provided by registered psychologist and RMS accredited Level 3 Road Safety Auditor, Carolyn Samsa, who spent five years working in the NSW Centre for Road Safety at the RTA and nine years in the advising industry associations representing outdoor advertising.

The LEC decision was further supported by the fact that during a 3-month period where the digital signage operated with a 10 second dwell time, there were no crashes reported in the vicinity of the sign. Furthermore, it was acknowledged in the court case that there were three other digital billboards that were previously approved and operational at signalised intersections within the Sydney basin with dwell times of approximately 10 seconds and yet there were no reported incidents of drivers being distracted by these signs as far as Samsa had been aware.

Similarly on Help Street, historical crash data within the visible distance of the proposed signage does not indicate this location to be a crash hotspot. In the most recent 5-year period, there were three incidents recorded all of which resulted in moderate injury or a vehicle being towed-away.

On this basis, a dwell time of 15 seconds, a five second increase on the minimum 10 seconds dwell time prescribed by the Guidelines, is deemed to be appropriate.

The east facing digital signage would be visible from Orchard Road south approach. Orchard Road is a side street that intersects with Help Street at a signalised T-junction. Orchard Road has a single lane on approach to the signals permitting either a left-turn or right-turn. The configuration of Orchard Road in the vicinity of the proposed signage is shown in Figure 3.4.



The east facing digital signage would be visible to motorist's stationary on Orchard Road waiting at a red traffic signal. The signage would be visible within 10 m of the stop line on the south approach. Beyond this point, driver sight lines to the digital signage would be obstructed by large roadside vegetation.



Figure 3.4: Driver Sight Lines from Orchard Road



The west facing digital signage would be visible from Railway Street north approach and south approach. Railway Street intersects with Help Street at a four-way signalised junction as shown in Figure 3.5. On both approaches, the digital signage would be visible within the first 10 m of the intersection. Any further north and south of these points, driver sight lines would be impeded by adjacent high-rise buildings.



Figure 3.5: Driver Sight Lines from Railway Street

Source: Photograph taken by TTPP dated 11/11/2020



It is noted that there is a precedence for this arrangement at other digital advertising signage locations throughout Sydney. One example is the digital signage on Boundary Road overhead railway ridge facing westbound motorists which can be seen from Pacific Highway south approach motorists waiting at the Boundary Road intersection as shown in Figure 3.6.



Figure 3.6: Pacific Highway and Boundary Road, Chatswood – View East towards Digital Sign



- (b) The placement of a sign should not distract a driver at a critical time. In particular, signs should not obstruct a driver's view:
 - (i) Of a road hazard,
 - (ii) To an intersection,
 - (iii) To a prescribed traffic control device (such as traffic signals, stop or give way signs or warning signs)
 - (iv) To an emergency vehicle access point or Type 2 driveways (wider than 6-9 metres) or higher.

A "critical time" is understood to refer to a point in time when a driver decision is required implying that a road safety implication could occur if a driver was distracted at this time.

Within the visible distance on both approaches, the proposed digital signage is positioned on the railway bridge above Help Street. On the east approach, the proposed digital signage would be positioned beyond the traffic signal lantern at Orchard Road as shown in Figure 3.1. As such, the proposed digital signage would not obstruct the motorist's view of traffic signal lanterns at any time. Also, the signage would not obstruct visibility to the traffic signal lanterns at Railway Street since the signage would be located above the existing bridge infrastructure.

In addition, there is a slight curve in the road alignment on approach to the traffic signals. However, a motorist would not be required to turn their head at any point as the digital signage and road alignment ahead would be within the motorist's view.

Further to this, motorists are permitted to turn right from Help Street to Cambridge Lane. Cambridge Lane serves as a residential access to the apartment buildings fronting Cambridge Lane and Mcintosh Street. Hence, it is expected that there would be minor right turn movements. As mentioned above, the proposed signage would be visible from 60 m on the east approach which is approximately where Cambridge Lane is located. Therefore the signage would not distract a driver's attention away from a vehicle ahead that is waiting to turn right into the laneway i.e. a potential road hazard.

Within the visible distance on both approaches, the proposed signage is positioned wellabove the traffic signal lanterns on Help Street as shown in Figure 2.5 and Figure 2.6 on the east approach, and Figure 2.9 and Figure 2.10 on the west approach.

In addition, the digital signage would be set upon the sides of the railway bridge high enough that it would not protrude below the base of the existing railway bridge and impede driver visibility to the signals ahead.

Furthermore, given that Help Street is also a low-speed environment, there is sufficient time for motorists to view the signage without it causing distraction or shifting driver focus away from the traffic signals.



3.1.4 Sign Spacing

(a) Sign spacing should limit drivers view to a single sign at any given time with a distance of no less than 150m between signs in any one corridor. Exemptions for low speed, high pedestrian zones or CBD zones will be assessed by RMS as part of their concurrence role.

There are no other digital signs or static billboards placed within 150m of the proposed signage in both directions.

3.2 Sign Design and Operation Criteria

- 3.2.1 Advertising Signage and Traffic Control Devices
- (a) The advertisement must not distract a driver from, obstruct or reduce the visibility and effectiveness of directional signs, traffic signals, prescribed traffic control devices, regulatory signs or advisory signs or obscure information about the road alignment.
- (b) The advertisement must not interfere with stopping sight distance for the road's design speed or the effectiveness of a traffic control device. For example:
 - (i) Could the advertisement be construed as giving instructions to traffic such as 'Stop', 'Halt' or 'Give Way'?
 - (ii) Does the advertisement imitate a prescribed traffic control device?
 - (iii) If the sign is in the vicinity of traffic lights, does the advertisement use red, amber or green circles, octagons, crosses or triangles or shapes or patterns that may result in the advertisement being mistaken for a traffic signal?

Details of the advertisements are not yet known since the project is still within the concept design stage. However, based on the example advertisements as depicted in the designer's impression (Figure 2.4 and Figure 2.8), the signage would not display colours and shapes which could be mistaken for a traffic signal.

Notwithstanding this, it is recommended that the content of the proposed signage be reviewed against Table 5 of the Guidelines to avoid any content that may be construed as imitating a traffic control device, particularly traffic signals.

As the proposed signage would be located in the vicinity of traffic signals, it is recommended that the use of flashing lights and digital content containing red, amber or green circles, octagons, crosses, triangles or shapes and patterns that may result in the advertisement being mistaken for a traffic signal not be used. Green or amber should be restricted to avoid additional distraction potential. Furthermore, the image must not contain text providing driving instructions to drivers.



3.2.2 Dwell Time and Transition Time

- (a) Each advertisement must be displayed in a completely static manner, without any motion, for the approved dwell time as per criterion (b) below
- (b) Dwell times for image display must not be less than:
 - (i) 10 seconds for areas where the speed limit is below 80km/h
 - (ii) 25 seconds for areas where the speed limit is 80km/h and over.
- (c) Any digital sign that is within 250 metres of a classified road and is visible from a school zone must be switched to a fixed display during school zone hours.
- (d) Digital signs must not contain animated or video/movie style advertising or messages of image failure, the default image must be a black screen.
- (e) The transition time between messages must be no longer than 0.1 seconds, as in the event of image failure, the default image must be a black screen.

The digital signage is proposed to contain text and images. Based on the Guidelines, the minimum dwell time for content displayed on the digital signage would be 10 seconds. However, since the proposed digital signage is located within close proximity to traffic signals, it is recommended that the dwell time be increased from 10 seconds to 15 seconds on both approaches as explained in Section 3.1.3.

3.2.3 Illumination and Reflectance

- (a) Luminance levels must comply with the requirements in Table 6 in Transport Corridor Outdoor Advertising and Signage Guidelines
- (b) The image displayed on the sign must not otherwise unreasonably dazzle or distract drivers without limitation to their colouring or contain flickering or flashing content.

Section 3.3.3 of the Guidelines details assessment criteria to ensure that illumination and reflectance qualities of signage do not cause a road safety hazard. It is understood that these criteria would be addressed in a separate specialist report prepared by a qualified consultant.

3.2.4 Interaction and Sequencing

- (a) The advertisement must no incorporate technology which interacts with in-vehicle electronic devices or mobile devices. This includes interactive technology or technology that enables opt-in direction communication with road users.
- (b) Message sequencing designed to make a driver anticipated the next message is prohibited across images presented on a single sign and across a series of signs.

The proposed digital signage would not contain interactive technology or technology that enables opt-in direction communication with motorists. The digital signage would not be designed to make motorists anticipate information.



3.3 Digital Signs

Transport Corridor Advertising Signage Guidelines specify criteria which are directly applicable to the assessment of digital signs. The criteria have been assessed in Table 3.1.

It is noted that most of the criteria are related to signage content and would need to be addressed by the operator. In addition, these criteria should be included as part of the consent conditions for the proposal to ensure future compliance.

	Criteria	Comments
A	Each advertisement must be displayed in a completely static manner, without any motion, for the approved dwell time as per criterion (d) below.	Relates to sign content only.
В	Message sequencing designed to make a driver anticipate the next message is prohibited across images presented on a sign and across a series of signs.	Relates to sign content only.
С	 The image must not be capable of being mistaken: i. for a prescribed traffic control device because it has, for example, red, amber or green circles, octagons, crosses or triangles or shapes or patterns that may result in the advertisement being mistaken for a prescribed traffic control device, or ii. as text providing driving instructions to drivers. 	Relates to sign content only.
D	 Dwell times for image display are: i. 10 seconds for areas where the speed limit is below 80 km/h. ii. 25 seconds for areas where the speed limit is 80 km/h and over. 	As detailed in Section 3.2.2 and 3.1.3, a dwell time of 15 seconds would be suitable for the proposed digital signage on both approaches.
E	The transition time between messages must be no longer than 0. Iseconds, and in the event of image failure, the default image must be a black screen.	An almost instantaneous transition is likely to reduce the additional distraction potential for digital signs. It is assumed that this operational requirement would be met.
F	Luminance levels must comply with the requirements in Section 3 (Transport Corridor Advertising Signage Guidelines).	This signage would be classified as Zone 3, with no limit to illuminance levels. Note: Zone 3 covers areas with generally medium off-street ambient lighting e.g. small to medium shopping/ commercial centres.
G	The images displayed on the sign must not otherwise unreasonably dazzle or distract drivers without limitation to their colouring or contain flickering or flashing content.	It is assumed that this operational requirement would be met.
Н	The amount of text and information supplied on a sign should be kept to a minimum (e.g. no more than a driver can read at a short glance).	Relates to sign content only.
I	Any signs that is within 250 metres of a classified road and is visible from a school zone must be switched to a fixed display during school zone hours.	The sign is not visible from within a school zone.
J	Each sign proposal must be assessed on a case by case basis including replacement of an existing fixed, scrolling or tri-vision sign with a digital sign and in the	Noted.

Table 3.1: Digital Signs



	Criteria	Comments
	instance of a sign being visible from each direction, both directions for each location must be assessed on their own merits.	
K	At any time, including where the speed limit in the area of the sign is changed, if detrimental effect is identified on road safety post installation of a digital sign, RMS reserves the right to re-assess the site using an independent RMS-accredited road safety auditor. Any safety issues identified by the auditor and options for rectifying the issues are to be discussed between RMS and the sign owner and operator.	Noted.
L	Sign spacing should limit drivers' view to a single sign at any given time with a distance of no less than 150m between signs in any one corridor. Exemptions for low speed, high pedestrian zones or CBD zones will be assessed by RMS as part of their concurrence role.	Noted.
Μ	 Signs greater than or equal to 20sqm must obtain RMS concurrence and must ensure the following minimum vertical clearances; i. 2.5m from lowest point of the sign above the road surface if located outside the clear zone ii. 5.5m from lowest point of the sign above the road surface if located within the clear zone (including shoulders and traffic lanes) or the deflection zone of a safety barrier if a safety barrier is installed. If attached to road infrastructure (such as an overpass), the sign must be located so that no portion of the advertising sign is lower than the minimum vertical clearance under the overpass or supporting structure at the corresponding location. 	The proposed digital signage would maintain the same vertical clearance as the existing rail bridge which is 4.6 m.
Ν	An electronic log of a sign's operational activity must be maintained by the operator for the duration of the development consent and be available to the consent authority and/or RMS to allow a review of the sign's activity in case of a complaint.	Noted.
0	A road safety check which focuses on the effects of the placement and operation of all signs over 20sqm must be carried out in accordance with Part 3 of the RMS Guidelines for Road Safety Audit Practices after a 12-month period of operation but within 18 months of the signs installation. The road safety check must be carried out by an independent RMS-accredited road safety auditor who did not contribute to the original application documentation. A copy of the report is to be provided to RMS and any safety concerns identified by the auditor relating to the operation or installation of the sign must be rectified by the applicant. In cases where the applicant is the RMS, the report is to be provided to the Department of Planning and Environment as well.	Noted.



4 Conclusion

Having consideration for the assessment and discussions presented within this report, the analysis suggests that the installation of a digital signage off the sides of the existing railway bridge across Help Street would be acceptable.

The Guidelines stipulate that the dwell time for an image display must not be less than 10 seconds for areas where the speed limit is below 80 km/h. The digital signage is proposed in an area that is zoned as 40km/h, and thus, a minimum dwell time of 10 seconds is applicable. However, since the proposed digital signage is located within close proximity to traffic signals on Help Street, it is recommended that the minimum dwell time be increased to 15 seconds for digital signs on both approaches.

Historically, there is a low number of crashes recorded in this section of Help Street, and therefore it is deemed to be a low risk area.

This conclusion is made on the basis that the proposed signage would not be expected to:

- Obstruct/ reduce visibility of any traffic control devices, pedestrians or cyclists
- Give incorrect information on the alignment of the road
- Interfere with the safe stopping distance to traffic signals, crossings or directional/ information signage
- Compromise safety for road users in the vicinity.



Appendix A

Concept Design Plans

20406-R01V01-201223 Help Street Signage Safety Assessment



ETHOS URBAN

Ethos Urban Pty. Ltd. ABN 13 615 087 931 ACN 615 087 931 www.ethosurban.com 173-185 Sussex Street Sydney NSW 2000 t +61 2 9956 6962 DISCLAIMER

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LEGEND / NOTES



Photomontage location Proposed sign (NTS)

		ISSUE	DATE	REVISION	REVISION BY	APPROVED BY	PROJECT	
ACM	Aluminium composite material	A	17.12.20	DA Issue to DPIE	PN	SM	DOOH Development Applications	
CL	Centre line						Prepared for Sydney Trains	
EX	Existing							
LIS	S Limited in stratum DEVELOPMENT APPLICATION ISSUE TO DPIE				E	SCALE AS SHOWN @ A1		

Site 12 Chatswood (Help Street - Eastern Side)	Site Plan	& General Arr	anaement 1	
Site 13 - Chatswood (Help Street - Lastern Side)	Site 13 - Ch	atswood (Help Str	reet - Eastern Si	de)

A-13.1 /Α

DRAWN BY PN

ETHOS URBAN

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LEGEND / NOTES



— — Site boundary Photomontage locatic Proposed sign (NTS)







NTS









PHOTOMONTAGE - VIEW 2 View from Help Street looking East

SECTION B-B

SCALE 1:100 @ A1

			ISSUE	DATE	REVISION	REVISION BY	APPROVED BY	PROJECT
	ACM	Aluminium composite material	А	17.12.20	DA Issue to DPIE	PN	SM	DOOH Development Applications
ion (CL	Centre line						Prepared for Sydney Trains
	ΕX	Existing						
	LIS	LIS Limited in stratum DEVELOPMENT APPLICATION ISSUE TO DPIE			E	SCALE		
								🕖 AS SHOWN @ A1

NOT FOR CONSTRUCTION

DRAWING

Site Plan & General Arrangement 2 Site 13 - Chatswood (Help Street - Western Side)

JOB NO. 2200249

DWG NO. A-13.2

ISSUE А

DATE 17.12.20

DRAWN BY PN

A-13.2

/A

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